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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/855,556	05/16/2001	Timothy Warner	01101	1507

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EXAMINER

COMBS, JANEL A

ART UNIT	PAPER NUMBER
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1742

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DATE MAILED: 09/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/855,556

Applicant(s)

WARNER, TIMOTHY

Examiner

Janelle Combs-Morillo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 16-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 10, 2003 has been entered.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 16-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyasato et al (US 5,865,912 A) in view of "ASM Vol. 15 Casting" (hereinafter ASM Vol. 15).

Miyasato teaches rolled, forged, or extruded (column 18 line 60, column 3 lines 7-12) aluminum alloy product typically 0.35-2.1 inches thick (9-53 mm, column 6 lines 23-26), with a composition consisting of (in weight%): 5.2-6.8% Zn, 1.7-2.4% Cu, 1.6-2% Mg, 0.03-0.3%Zr, balance aluminum (abstract). Miyasato teaches a conventional T6 temper can be applied- which includes solution heat treating, quenching, and artificially aging (column 20 lines 47-50), substantially as presently claimed. Miyasato teaches that said product is preferably 85-100% unrecrystallized (column 16 lines 43-46), and therefore Miyasato is held to meet the presently

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claimed limitations of "partly recrystallized" as well as <35 vol% recrystallized grains in between one-quarter and mid-thickness. Miyasato does not a) specify the intercept distance between recrystallized areas, or b) teach the as-cast grain size.

Concerning item a), as stated above, Miyasato teaches a partly recrystallized AlZnMgCu alloy product that is processed in substantially the same way as the presently claimed product. The examiner points out that where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims (such as distance between recrystallized areas) are necessarily present. See MPEP 2112.01.

Concerning item b), ASM Vol. 15 teaches "grain refining is widely practiced in the commercial production of virtually all aluminum alloys, whether wrought or cast" (page 476, column 1), and Ti and/or B act as grain refiners during solidification (see ASM Vol. 15 p 476 columns 1-2). For instance, a grain refined AA 7050 can exhibit a grain size from 150-340  $\mu\text{m}$  (see Fig. 68 page 481). ASM Vol. 15 teaches 0.01-0.08% Ti and about 0.003% B are typically used to refine grains (page 477, column 3), and that the addition of Ti and B is a result effective variable (the expected result being finer grains with increased addition, Figs. 65, 66). It would have been obvious to one of ordinary skill in the art to add Ti and B to the alloy taught by Miyasato in order to obtain a finer grain structure, within the presently claimed 300-800  $\mu\text{m}$  as cast grain size, because ASM Vol. 15 teaches an overlapping as-cast grain size (for AA 7050 that has added Ti and B), or because the addition of grain refiners Ti+B is a result effective variable.

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Changes in temperature, concentrations, or other process conditions of an old process does not impart patentability unless the recited ranges are critical, i.e. they produce a new and unexpected result. However, said parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Because Miyasato and ASM Vol. 15 teaches a partly recrystallized aluminum alloy product with substantially the same composition and processed substantially as presently claimed, it is held that the combination of Miyasato and ASM Vol. 15 has created a prima facie case of obviousness of the presently claimed invention.

Concerning dependent claims 17-19, ASM Vol. 15 teaches 0.01-0.08% Ti and about 0.003% B are typically used to refine grains (page 477, column 3). Said grain-refining inoculants titanium or titanium plus boron are added typically as master alloys to molten metal before casting, and provide fine, uniform grain structure in the as-cast state (p 477).

Concerning dependent claims 20 and 21, as stated above, because the prior art teaches substantially the same product processed substantially as presently disclosed/ claimed, then the properties applicant discloses and/or claims (such as distance between recrystallized areas) is expected to be present. See MPEP 2112.01.

Concerning dependent claims 22 and 23, Miyasato teaches an overlapping alloy composition (as stated above).

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Concerning dependent claim 24, Miyasato teaches that said product can be used for a structural member of an aircraft (column 19 lines 53-54).

4. Claims 16-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shahani et al (US 6,027,582) in view of "ASM Vol. 15 Casting" (hereinafter ASM Vol. 15).

Shahani teaches a rolled, extruded or forged AlZnMgCu alloy >60 mm thick with the following composition (in weight%): 5.7-8.7% Zn, 1.7-2.5% Mg, 1.2-2.2% Cu, <0.14% Fe, <0.11% Si, 0.05-0.15% Zr, <0.02% Mn, <0.02% Cr (column 3 lines 38-52), optionally Ti (column 1 line 60). Shahani teaches the application of a T6 temper (column 16 line 5), which includes solution heating, quenching, artificially aging. Shahani teaches that the fraction of the recrystallized grains between the quarter thickness and half thickness  $\leq 35\%$  (column 4 lines 1-4). Shahani does not a) specify the intercept distance between recrystallized areas, or b) teach the as-cast grain size.

Concerning item a), as stated above, Shahani teaches a partly recrystallized AlZnMgCu alloy product that is processed in substantially the same way as the presently claimed product. The examiner asserts that where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims (such as distance between recrystallized areas) are necessarily present. See MPEP 2112.01.

Concerning item b), ASM Vol. 15 teaches "grain refining is widely practiced in the commercial production of virtually all aluminum alloys, whether wrought or cast" (page 476,

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column 1), and Ti and/or B act as grain refiners during solidification (see ASM Vol. 15 p 476 columns 1-2). For instance, a grain refined AA 7050 can exhibit a grain size from 150-340  $\mu\text{m}$  (see Fig. 68 page 481). ASM Vol. 15 teaches 0.01-0.08% Ti and about 0.003% B are typically used to refine grains (page 477, column 3), and that the addition of Ti and B is a result effective variable (the expected result being finer grains with increased addition, Figs. 65, 66). It would have been obvious to one of ordinary skill in the art to add Ti and B to the alloy taught by Shahani in order to obtain a finer grain structure, within the presently claimed 300-800  $\mu\text{m}$  as cast grain size, because ASM Vol. 15 teaches an overlapping as-cast grain size (for AA 7050 that has added Ti and B), or because the addition of grain refiners Ti+B is a result effective variable (as set forth above).

Concerning dependent claims 20 and 21, as stated above, because the prior art teaches substantially the same product processed substantially as presently disclosed/ claimed, then the properties applicant discloses and/or claims (such as distance between recrystallized areas) is expected to be present. See MPEP 2112.01.

Concerning dependent claims 22 and 23 Shahani teaches an overlapping alloy composition (as stated above).

Concerning dependent claim 24, Shahani teaches that said product can be used for a structural member of an aircraft (abstract).

### ***Response to Amendment***

5. Applicant's arguments with respect to claims 16-24 have been considered but are moot in view of the new ground(s) of rejection.

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***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs- Morillo whose telephone number is (703) 308-4757. The examiner can normally be reached Monday through Friday from 7:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on (703) 308-1146. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



GEORGE WYSZOMIERSKI  
PRIMARY EXAMINER

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September 17, 2003